

REMARKS

Summary of Amendments

Upon entry of the present amendment claims 27-29, 34, 35, 37-42, and 44-59 will be pending, with claims 27, 44, 53, 54 and 57-59 being independent claims. Claims 27, 40, 41 and 53 are (predominantly editorially) amended, claims 30-33, 36 and 43 are canceled and new claims 54-59 are added, with new independent claims 54 and 57-59 corresponding generally, in the given order, to canceled dependent claims 30, 33, 36 and 43.

Summary of Office Action

As an initial matter, Applicants note with appreciation that a signed and initialed copy of the Form PTO-1449 submitted in the Information Disclosure Statement filed February 17, 2004 has been returned together with the present Office Action.

Applicants also note with appreciation that the Office Action acknowledges the claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f) and receipt of the certified copy of the priority document from the International Bureau.

Claims 44-52 are withdrawn from consideration as being drawn to a non-elected invention, despite Applicants' arguments as to why a restriction is unwarranted set forth in the Election with Traverse filed February 17, 2004.

Claims 27-43 and 53 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

Claims 27-29, 34, 35 and 37-42 are rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Nishimori et al., JP 2000-051708 (hereafter "NISHIMORI").

Claims 27-29, 34, 35 and 37-42 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over EPA 0842 967 by Jonschker et al. (hereafter "JONSCHKER").

Applicants note with appreciation that claims 30-33, 36, 43 and 53 are indicated to be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. § 112, second paragraph and, in the case of claims 30-33, 36 and 43, to include all of the limitations of the base claims and any intervening claims.

Response to Office Action

Withdrawal of the rejections of record is respectfully requested, in view of the foregoing amendments and the following remarks.

Response to Rejection of Claims under 35 U.S.C. § 112, Second Paragraph

Claims 27-43 and 53 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. In particular,

regarding claims 27 and 53, it is allegedly unclear what is meant by the phrase “composition comprising a (porous) coating of a coating material on a support”. It allegedly is also unclear what distinguishes the recited hydrolysable and non-hydrolysable radicals. The Office Action asserts that both are described as possibly being amino and halogen and that some so-called non-hydrolysable radicals appear to be hydrolysable. It further is allegedly unclear what is meant by the phrase “glass-forming elements” and the Examiner inquires in what manner an element is to be classified as “glass-forming” and if such an element is necessarily in atomic, elemental form.

Regarding claim 27, it allegedly is unclear what is meant by the phrase “obtainable” and the Examiner inquires whether this claim is a product-by-process claim or (drawn to) a product that is capable of being obtained by the claimed process steps.

Regarding claim 31, it allegedly is unclear whether the claimed “at least one other transition metal” is any transition metal or those of claim 27.

In response to the rejection of claims 27 and 53 in view of the phrase “composition comprising a (porous) coating of a coating material on a support”, Applicants have editorially amended these claims by deleting “of a coating material” to render these claims even clearer. Accordingly, this rejection is moot.

In response to the rejection of claims 27 and 53 with respect to the allegedly missing distinction between hydrolysable and non-hydrolysable radicals, Applicants respectfully submit that radicals in which a heteroatom such as, e.g.,

O, N and halogen is directly bonded to the Si atom, are generally hydrolysable, illustrative examples of such radicals being halogen, amino, alkoxy, acyloxy, etc. Conversely, radicals which are bonded to the Si atom through a carbon atom are generally non-hydrolysable, illustrative examples thereof being alkyl and aryl radicals. The non-hydrolysable radicals may be substituted with radicals such as, e.g., amino, alkoxy or halogen radicals (e.g., $-\text{CH}_2\text{Cl}$), i.e., radicals which would generally be hydrolysable radicals if they were bonded directly to the Si atom, as set forth above. However, since these substituted radicals are still bonded to the Si atom through a carbon atom, they will generally remain non-hydrolysable. Accordingly, there is a distinction between hydrolysable and non-hydrolysable radicals, which distinction is clearly reflected in the present specification.

Regarding the inquiry as to which elements can be considered to be “glass-forming” elements, the Examiner’s attention is respectfully directed to page 4, third paragraph, of the present application, where examples of glass-forming elements are set forth. Furthermore, enclosed herewith is a copy of page 320 of the monograph “Industrielle Anorganische Chemie” [Industrial Inorganic Chemistry] where in the table on the left side a list of exemplary glass-forming elements (in the form of their oxides) is given.¹ At any rate, the compounds of glass-forming elements recited in the present independent claims are identified as optional,

¹ In accordance with M.P.E.P. § 609C(3), the document cited above in support of Applicants’ remarks is being submitted as evidence directed to an issue raised in the mentioned Office Action, and no additional fee or Certification pursuant to 37 C.F.R. §§ 1.97 and 1.98, or citation on a FORM PTO-1449 is believed to be necessary.

wherefore there can be no doubt as to the scope of these claims for this reason alone.

Also, the present independent claims clearly recite “compounds of glass-forming elements”, i.e., not elements in elemental form as apparently assumed by the Examiner.

Regarding the phrase “obtainable”, Applicants respectfully submit that the claims reciting this phrase are product-by-product claims, “obtainable” making it even clearer than “obtained” that it is the product that is being claimed, not the process by which this product may have been made.

Regarding claim 31, Applicants submit that this rejection is moot in view of new claim 55, which replaces canceled claim 31.

To sum up, the above remarks should make it clear that the rejection of the claims under 35 U.S.C. § 112 is unwarranted, wherefore withdrawal thereof is respectfully requested.

Response to Rejection of the Claims under 35 U.S.C. § 102(e) over NISHIMORI

Claims 27-29, 34, 35 and 37-42 are rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by NISHIMORI.

This rejection is respectfully traversed. In particular, NISHIMORI is not a U.S. patent application or U.S. patent (but a Japanese patent application), for which reason alone it is not available as prior art under 35 U.S.C. § 102(e).

Accordingly, the rejection of the claims under 35 U.S.C. § 102(e) is untenable and should be withdrawn, which action is respectfully requested.

NISHIMORI was published one February 22, 2000, i.e., less than one year before the filing date of the present application in the U.S. (= filing date of International Application PCT/EP00/03020, of which the present application is a National Stage), i.e., April 5, 2000. Since it is anticipated that the Examiner would likely want to reject the claims under 35 U.S.C. § 102(a) over NISHIMORI in the next Office Action, Applicants are submitting herewith a verified English language translation of the priority document of the present application, i.e., of German Patent Application 199 15 377.9, which was filed on April 6, 1999, i.e., before the publication date of NISHIMORI. Accordingly, since all of the present claims are believed to be supported by the priority document, NISHIMORI is not available as prior art under 35 U.S.C. § 102(a), either.

***Response to the Rejection of the Claims under 35 U.S.C. § 103(a) over
JONSCHKER***

Claims 27-29, 34, 35 and 37-42 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over JONSCHKER. Specifically, the rejection contends that JONSCHKER teaches a polycondensate of silane and metal oxide particles on a substrate, and that titanium oxide particles are described as effective metal oxide particles, which titanium oxide particles allegedly are inherently catalytic. The rejection further asserts that the catalytic behavior of the composition of JONSCHKER would allegedly be expected “in view of incomplete

surface modification of titanium oxide particles and in view of the described oxidation protection properties of the underlying surfaces by these materials.”

Applicants respectfully disagree with the Examiner’s analysis of JONSCHKER and the conclusions drawn therefrom. As already set forth in response to the previous Office Action, JONSCHKER does not address any catalytic properties of the composite material disclosed therein, let alone catalytic properties of the colloidal inorganic particles used for the production of this composite.

The rejection alleges that titanium oxide particles are “inherently catalytic”. However, the present Office Action does not offer any explanation for this allegation, let alone any written support therefor. Moreover, even if one were to accept, *arguendo*, this allegation, it is pointed out that the present independent claims recite “particles comprising at least one transition metal oxide which exhibits catalytic activity in at least one of a deodorization and an oxidation process”, i.e., not just a transition metal oxide which exhibits catalytic activity in any respect. JONSCHKER does not mention any such oxidative or deodorizing catalytic activity.

Further, Applicants note that the Office Action refers to the “oxidation protection properties” disclosed in JONSCHKER and the Examiner’s conclusion apparently drawn therefrom, i.e., that the titanium oxide particles exhibit “catalytic behavior”. Since this “catalytic behavior” is not further specified in the present Office Action, Applicants do not know what this “catalytic behavior” relates to in

the Examiner's opinion. However, Applicants respectfully submit that should catalytic behavior in an oxidation process have been intended, JONSCHKER discloses the exact opposite thereof. Specifically, catalytic behavior in an oxidation process apparently implies an oxidation which is somehow promoted or enhanced, whereas JONSCHKER refers to oxidation protection properties which may, among many other properties, be exhibited by the nanocomposite disclosed therein. Evidently, oxidation protection and catalytic activity in an oxidation process are opposites.

It appears that only the usual inactive form of TiO_2 would serve to protect an underlying substrate from UV radiation and, thus from oxidation. In this regard, TiO_2 is one of the most common white pigments in paints. Major applications thereof include, e.g., paints, paper coating and toothpaste, i.e., products for which catalytic activity would be inappropriate. This is yet another reason why JONSCHKER does not render obvious the claimed subject matter in any respect.

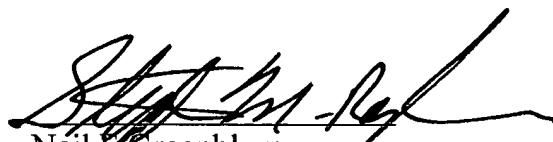
To sum up, for at least the reasons set forth above, JONSCHKER does not render obvious the subject matter of any of the claims submitted herewith. Accordingly, withdrawal of the rejection of the claims under 35 U.S.C. § 103(a) as obvious over this document is warranted and respectfully requested.

CONCLUSION

In view of the foregoing, it is believed that all of the claims in this application are in condition for allowance, which action is respectfully requested.

If any issues yet remain which can be resolved by a telephone conference, the Examiner is respectfully invited to telephone the undersigned at the telephone number below.

Respectfully submitted,
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Gläser sind anorganische Schmelzprodukte, die ohne Kristallisation erstarren. Sie sind aus dreidimensionalen Netzwerken ohne regelmäßige, periodische Anordnung der Atome aufgebaut

Die technisch wichtigsten Gläser basieren auf dreidimensional über gemeinsame Sauerstoff-Verknüpfte SiO_4 -Tetraeder. In den Lücken des Netzwerks sitzen die Netzwerkwandler. „Intermediäre“ Kationen können netzwerkbildend oder netzwerk wandelnd eingebaut werden

| -bildner | Netzwerk -wandler | intermediäre |
|-------------------------|-----------------------|-------------------------|
| SiO_2 | Li_2O | BaO |
| GeO_2 | Na_2O | Ga_2O_3 |
| B_2O_3 | K_2O | In_2O_3 |
| P_2O_5 | Rb_2O | Sc_2O_3 |
| As_2O_3 | Cs_2O | Y_2O_3 |
| Sb_2O_3 | MgO | La_2O_3 |
| V_2O_5 | CaO | SnO_2 |
| | SrO | PbO_2 |
| | | ThO_2 |

Quarzglas besteht aus SiO_2 ; ausgezeichnet durch

- hervorragende dielektrische Eigenschaften

5.1.1.2 Struktur

Glas ist ein anorganisches Schmelzprodukt, das im wesentlichen ohne Kristallisation erstarrt. Im Gegensatz zu Kristallen liefern Gläser diffuse Röntgenbeugungsdiagramme, da die für kristalline Strukturen typische Fernordnung der Atome in Gläsern fehlt. Nach der bereits 1933 von W. H. Zachariasen aufgestellten Netzwerkhypothese sind die Gläser aus dreidimensionalen Netzwerken aufgebaut ohne die regelmäßige Anordnung, wie sie im Kristall vorliegt. Die Bausteine der Gläser zeigen jedoch gegenüber ihren nächsten Nachbarn weitgehend die Anordnung der Atome zueinander, wie sie aus den kristallinen Strukturen bekannt sind (Nahordnung).

Praktisch alle industriell gefertigten Gläser sind Silikatgläser. Die strukturelle Grundeinheit ist der Silicium-Sauerstoff-Tetraeder, in dem ein Siliciumatom tetraedrisch von vier Sauerstoff-Atomen umgeben ist. Die Tetraeder sind über gemeinsame Ecken miteinander verknüpft, d. h. ein Sauerstoff-Atom gehört zwei Tetraedern gemeinsam an. Im reinen SiO_2 -Glas, dem Quarzglas, sind sämtliche Sauerstoff-Atome Brückensauerstoff-Atome. Durch Einführung anderer Komponenten, z. B. Alkalioxid, wird der geschlossene Verband aufgesprengt, und es bilden sich einfach gebundene Trennstellen-Sauerstoff-Atome.

Die Oxide, die das für die Glasbildung wesentliche Netzwerk bilden, bezeichnet man als Netzworlbildner, die Ionen, die das Netzwerk durch Trennstellen abbauen oder verändern, als Netzwerk wandler. Daneben gibt es eine Reihe von „intermediären“ Kationen, die je nach Glas-typ netzwerkbildende oder netzwerk wandelnde Eigenschaften haben.

Die Netzwerk wandler-Kationen besetzen Hohlräume des Netzwerks. Je nach Anzahl und Größe der Kationen kann eine Aufweitung (z. B. durch K^+ -Ionen) oder eine Kontraktion (z. B. durch Li^+ -Ionen) des Netzwerks bewirkt werden.

5.1.1.3 Glaszusammensetzungen

Quarzglas ist das einzige technisch genutzte Einkomponentenglas. Es hat hervorragende dielektrische und chemische Eigenschaften, einen sehr geringen thermischen

Ausdehnungskoeffizient im Bereich der Quarzglas- und durchsichtigen

Die Konzentration von Alkalioxid, das die Vernetzung der Silicium-Atome durch die Trennstellen

Der Einfluß der Trennstellen auf die thermische Stabilität der chemischen Struktur wird durch die häufige Verwendung

Die technische Kalk-Glas- und Soda-Glas-herstellung geben verschiedene alliierte Natron-Konzentrationen, die weiterverarbeitet werden